

IN THE CLAIMS

1. (Currently Amended) ~~An apparatus~~ A system for correcting ink ~~droplets~~ droplet placement errors ~~for~~ in a recording apparatus, ~~the~~ comprising:

a recording apparatus recording images on a recording medium which is conveyed ~~[[to]]~~ in a first direction ~~by~~ past discharging ink droplets from a recording head part to the recording medium, the recording head part having a plurality of ~~recording~~ recording heads arranged in the first direction, the recording ~~head~~ heads having a plurality of recording head arrays, the recording head arrays having a plurality of recording head units arranged in a second direction perpendicular to the first direction, the recording head units having ~~[[a]]~~ an ink discharging surface~~[[,]]~~; ~~the apparatus for correcting ink droplets placement errors comprising~~:

an identifying unit for identifying ink ~~droplets~~ droplet placement errors by the recording head units in the first direction; and

a controlling unit for controlling timing to discharge ink droplets by the recording head units to reduce ink ~~droplets~~ droplet placement errors based on the errors.

2. (Currently Amended) ~~The apparatus~~ system according to claim 1, ~~further comprising~~ wherein the identifying unit includes a reading unit for reading images on a recording medium, the images being printed by the recording head part; ~~and~~ a detecting unit for detecting the ink ~~droplets~~ droplet placement errors in the first direction by each of the recording head units based on the reading images provided by the reading unit, ~~wherein~~ and the controlling unit controls the timing based on the errors provided by the detecting unit.

3. (Currently Amended) The ~~apparatus~~ system according to claim 2, wherein the recording head units ~~which~~ are disposed in a staggered arrangement, the detecting unit further detects ink ~~droplets~~ droplet placement errors of the recording head arrays, and the controlling unit further controls timing to discharge ink droplets from the recording head units[[,]] based on the errors provided by the detecting unit.

4. (Currently Amended) The ~~apparatus~~ system according to claim 3, wherein the detecting unit further detects ink ~~droplets~~ droplet placement errors of the recording heads in the first direction, and the controlling unit further controls timing to discharge ink droplets from the recording head units of each of the recording heads to reduce the errors[[,]] based on the errors provided by the detecting unit.

5. (Currently amended) ~~An apparatus~~ A system for correcting ink ~~droplets~~ droplet placement errors ~~for~~ in a recording apparatus, comprising:

~~the~~ a recording apparatus recording images on a recording medium which is conveyed [to] in a first direction ~~by~~ past discharging ink droplets from a recording head part to the recording medium, the recording head part having a plurality of ~~recording~~ recording heads in the first direction, the recording ~~head~~ heads having a plurality of recording head arrays, the recording head arrays having a plurality of recording head units in a second direction perpendicular to the first direction, the recording head units having an ink discharging surface; ~~the apparatus for correcting ink droplets placement errors comprising~~:

an identifying unit for identifying ink ~~droplets~~ droplet placement errors by the recording head arrays in the first direction; and

a controlling unit for controlling timing to discharge ink droplets by the recording head units to reduce the errors based on the errors.

6. (Currently Amended) The ~~apparatus~~ system according to claim 5, ~~further comprising: wherein the identifying unit includes~~ a reading unit for reading images on a recording medium, the images being printed by the recording head part; ~~and~~ a detecting unit for detecting the ink ~~droplets~~ droplet placement errors in the first direction provided by each of the recording heads based on the reading images provided by the reading unit, ~~wherein and~~ the controlling unit controls the timing based on the errors provided by the detecting unit.

7. (Currently Amended) The ~~apparatus~~ system according to claim 6, wherein the recording head units ~~which~~ are disposed in a staggered arrangement, the detecting unit further detects ink ~~droplets~~ droplet placement errors provided by the recording heads in the first direction, and the controlling unit further controls timing to discharge ink droplets from the recording head units of the recording head arrays to reduce the errors based on the errors by the detecting unit.

8. (Currently Amended) ~~An apparatus~~ A system for correcting ink ~~droplets~~ droplet placement errors ~~for~~ in a recording apparatus, comprising:

~~the~~ a recording apparatus recording images on a recording medium which is conveyed [to] in a first direction ~~by~~ past discharging ink droplets from a recording head part to the recording medium, the recording head part having a plurality of recording heads, the recording head ~~heads~~ heads having a plurality of recording head arrays in the first direction, the recording head arrays having a plurality of recording head units in a second direction perpendicular to the first

direction, the recording head units ~~which are being~~ disposed in a staggered arrangement, the recording head units having ~~[[a]] an~~ ink discharging surface~~[[;]]~~, ~~the apparatus for correcting ink droplets placement errors comprising:~~

an identifying unit for identifying ink ~~droplets~~ droplet errors by the recording heads in the first direction; and

a controlling unit for controlling timing to discharge ink droplets by the recording head units to reduce ink ~~droplets~~ droplet placement errors based on the errors.

9. (Currently Amended) The ~~apparatus system~~ according to claim 8, ~~further comprising:~~ wherein the identifying unit includes a reading unit for reading images on a recording medium, the images being printed by the recording head part; ~~and~~ a detecting unit for detecting the ink ~~droplets~~ droplet placement errors in the first direction by the recording head arrays based on reading images provided by the reading unit, and ~~wherein~~ the controlling unit controls timing based on the errors provided by the detecting unit.

10. (Currently amended) ~~The apparatus according to claim 9;~~ An apparatus for correcting ink droplet placement errors in a recording apparatus, the recording apparatus recording images on a recording medium which is conveyed in a first direction past discharging ink droplets from a recording head part to the recording medium, the recording head part having a plurality of recording heads, the recording heads having a plurality of recording head arrays in the first direction, the recording head arrays having a plurality of recording head units in a second direction perpendicular to the first direction, the recording head units being disposed in a staggered arrangement, the recording head units having an ink discharging surface, the apparatus

for correcting ink droplet placement errors comprising:

an identifying unit for identifying ink droplet errors by the recording heads in the first direction, the identifying unit including a reading unit for reading images on a recording medium, the images being printed by the recording head part, and a detecting unit for detecting the ink droplet placement errors in the first direction by the recording head arrays based on reading images provided by the reading unit; and

a controlling unit for controlling timing to discharge ink droplets by the recording head units to reduce ink droplet placement errors based on the errors,

wherein the controlling unit controls timing based on the errors provided by the detecting unit to discharge ink droplets roughly based on a printing pulse and controls timing to discharge the droplets finely based on a controlling pulse, wherein the controlling pulse has a higher frequency than that of the printing pulse.

11. (Original) The apparatus according to claim 10, wherein the printing pulse controls the timing to record on the medium for every line in the first direction.

12. (Currently Amended) ~~An apparatus~~ A system for correcting ink droplets droplet placement errors ~~for~~ in a recording apparatus, comprising:

~~the~~ a recording apparatus for recording images on a recording medium which is conveyed [to] in a first direction by discharging ink droplets from a recording head part to the recording medium, the recording head part having a plurality of recording heads, the recording head heads having a plurality of recording head arrays in the first direction, the recording head arrays having

a plurality of recording head units in a second direction perpendicular to the first direction, the recording head units ~~which are being~~ disposed in a staggered arrangement, the recording head units having an ink discharging surface~~[[;]], comprising:~~

an identifying unit for identifying ink ~~droplets~~ droplet placement errors by the recording head units, ~~and the recording head arrays,~~ and recording heads in the first direction; and

a controlling unit for controlling timing to discharge ink droplets by the recording head units to reduce ink ~~droplets~~ droplet placement errors in the first direction based on a first ink ~~droplets~~ droplet placement error provided by the recording head units, a second ink ~~droplets~~ droplet placement error provided by the recording head arrays, and a third ink ~~droplets~~ droplet placement error provided by the recording heads.

13. (Currently Amended) ~~The apparatus according to claim 12, further comprising:~~ An apparatus for correcting ink droplet placement errors in a recording apparatus, the recording apparatus for recording images on a recording medium which is conveyed in a first direction past discharging ink droplets from a recording head part to the recording medium, the recording head part having a plurality of recording heads, the recording heads having a plurality of recording head arrays in the first direction, the recording head arrays having a plurality of recording head units in a second direction perpendicular to the first direction, the recording head units being disposed in a staggered arrangement, the recording head units having an ink discharging surface, comprising:

an identifying unit for identifying ink droplet placement errors by the recording head units, the recording head arrays, and recording heads in the first direction;

a controlling unit for controlling timing to discharge ink droplets by the recording head units to reduce ink droplet placement errors in the first direction based on a first ink droplet placement error provided by the recording head units, a second ink droplet placement error provided by the recording head arrays, and a third ink droplet placement error provided by the recording heads;

wherein the identifying unit includes a reading unit for reading images on the recording medium, the images being printed by the recording head part;~~and;~~ a detecting unit for detecting the ink ~~droplets~~ droplet placement errors in the first direction, the detecting unit having a first detecting unit for detecting the errors by the recording head units and a second detecting unit for detecting the errors by the recording head arrays and a third detecting unit for detecting the errors by the recording heads, based on the reading images provided by the reading unit, and wherein the controlling unit controls timing based on the errors provided by the first or second or third detecting unit.

14. (Original) The apparatus according to claim 13, further comprising:

a first controlling board having the first detecting unit and the second detecting unit; and

a second controlling board having the third detecting unit and the controlling unit.

15. (Currently Amended) The ~~apparatus~~ system according to claim 12, ~~further comprising:~~ wherein the identifying unit includes a first controlling unit for controlling the recording head units to discharge ink droplets from the surface of the recording head units[;], and a second controlling unit for controlling the timing to discharge ink droplets from the surface of

the recording head units by controlling the first controlling unit, the controlling units being provided with ~~the~~ each recording head ~~arrays~~ array.

16. (Currently amended) The apparatus according to claim-~~15~~ 13, wherein

the controlling unit includes a first controller unit for controlling the recording head units to discharge ink droplets from the surface of the recording head units, and a second controller unit for controlling the timing to discharge ink droplets from the surface of the recording head units by controlling the first controller unit, and

~~wherein the~~ the apparatus further comprising a first controlling board ~~has having~~ the first ~~controlling controller~~ unit and the first detecting unit and the second detecting unit, and the second controlling board ~~has having~~ the third detecting unit and the second ~~controlling controller~~ unit.

17. (Currently Amended) A recording apparatus for recording images on a recording medium which is conveyed ~~[[to]]~~ in a first direction ~~by~~ past discharging ink droplets comprising:

a recording head part having a plurality of recording heads in a first direction,

a plurality of recording head arrays having a plurality of recording head units in a second direction perpendicular to the first direction, the recording head arrays being held by the recording head, the recording head units having an ink discharging surface, ~~the recording head units which are~~ and being disposed in a staggered arrangement~~[[,]]~~;

an identifying unit for identifying a first and second and third error, ~~which of them~~

corresponding respectively to the recording head units and head arrays and heads in the first direction; and

a controlling unit for controlling timing to discharge ink droplets by the recording head units to reduce ink ~~droplets~~ droplet placement errors in the first direction based on the first error provided by the identifying unit corresponding to the recording head units, the second error provided by the identifying unit corresponding to the recording head arrays, and the third error provided by the identifying unit corresponding to the recording heads.

18. (Currently Amended) A correcting method for correcting ink ~~droplets~~ droplet placement errors comprising the steps of:

~~detecting for at least one ink droplets placement errors, the errors comprising a first error due to an arrangement of each recording head units, a second error due to an arrangement of each recording head arrays, a third error due to an arrangement of each recording heads~~ a first ink placement error between recording head units arranged in a direction perpendicular to a recording medium conveying direction;

detecting for a second ink placement error between recording head arrays arranged in the recording medium conveying direction and respectively having a plurality of recording head units arranged in the direction perpendicular to the recording medium conveying direction; and

controlling timing to discharge the droplets from the recording head units to reduce the ~~errors based on at least the detected errors~~ first ink placement error and the second ink placement error based on the detected first ink placement error and the detected second ink placement error.

Please add the following new claim:

19. (New) A system for ink droplet placement errors in a recording apparatus, comprising:

a recording apparatus recording images on a recording medium which is conveyed in a first direction past discharging ink droplets from a recording head part to the recording medium, the recording head part having a plurality of recording head units having an ink discharging surface;

an identifying unit for identifying ink droplet placement errors by the recording head units in the first direction; and

a controlling unit for controlling timing to discharge ink droplets by the recording head units to reduce ink droplet placement errors based on the errors, the controlling unit controls timing to discharge ink droplets roughly based on a printing pulse and controls timing to discharge the droplets finely based on a controlling pulse, wherein the controlling pulse has a higher frequency than that of the printing pulse.